

WHAT IS CLAIMED IS:

1. A system for handling tubular body sections at a drilling site comprising:
 - a drill platform having a derrick extending upwards therefrom, the drill platform
 - 5 and derrick defining a drill area;
 - a first hoist connected to an upper part of the derrick for passing a tubular body through a drilling opening defined in the drill platform;
 - at least one storage area being arranged within the drill area for storing a plurality of tubular lengths, each of the tubular lengths comprising at least two releasably
 - 10 interconnected tubular body sections;
 - at least one preparation opening extending through the drill platform at a location spaced from the drilling opening and from the at least one storage area;
 - a torquing tool for rotatably interconnecting tubular bodies at the at least one preparation opening to form tubular lengths;
 - 15 a first pipehandling device for transporting tubular bodies and tubular lengths from outside the drill area to the at least one preparation opening; and
 - a second pipehandling device for transporting tubular lengths between the at least one preparation opening, the at least one storage area, and the first hoist.
- 20 2. The system according to claim 1, wherein the first pipehandling device comprises an axially rotatable vertical strut having at least one gripping device for gripping tubular bodies and tubular lengths attached thereto.
3. The system according to claim 2, wherein the at least one gripping device is
- 25 further designed to hoist tubular bodies and tubular lengths vertically.
4. The system according to claim 2, wherein the first pipehandling device further comprises a hoist capable of lowering the gripping device outside the drill area to an outside tubular storage area.

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5. The system according to claim 2, wherein said gripping device comprises at least two vertically aligned gripping devices arranged on the strut.

6. The system according to claim 1, wherein said gripping device is extendable
5 radially outward from the axial center of the first pipehandling device.

7. The system according to claim 1, wherein the second pipehandling device comprises a gripping arm positioned adjacent to the at least one storage area, and wherein the gripping arm is rotatable about a vertical axis and laterally extendable.

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8. The system according to claim 1, wherein the torquing tool is an iron roughneck.

9. The system according to claim 1, wherein the torquing tool is rotatable about a
15 vertical axis and laterally extendable such that the torquing tool is capable of engaging tubular bodies or tubular lengths at both the at least one preparation opening and the drilling opening.

10. The system according to claim 1, wherein the at least one storage area is
20 positioned between the drilling opening and the preparation opening.

11. The system according to claim 1, comprising at least two separate storage
25 areas wherein the second pipehandling device is positioned between the at least two storage areas.

12. The system according to claim 1, further comprising a tubular ramp for transporting tubular bodies from a storage area outside the drill area to drill platform, wherein the first pipehandling device extends outward over the tubular ramp.

13. The system according to claim 1, wherein the derrick defines a first access opening through which the first pipehandling device may grip the tubular bodies from outside the drill area.

5 14. A method for manipulating tubular body sections at a drilling site comprising: providing a tubular handling system comprising:

 a drill platform having a derrick extending upwards therefrom, the drill platform and derrick defining a drill area,

10 a first hoist connected to an upper part of the derrick for passing a tubular body through a drilling opening defined in the drill platform,

 at least one storage area being arranged within the drill area for storing a plurality of tubular lengths, each of the tubular lengths comprising at least two releasably interconnected tubular bodies,

15 at least one preparation opening extending through the drill platform at a location spaced from the drilling opening and from the at least one storage area,

 a torquing tool for rotatably interconnecting tubular bodies at the at least one preparation opening to form tubular lengths,

20 a first pipehandling device for transporting tubular bodies and tubular lengths from outside the drill area to the at least one preparation opening, and

 a second pipehandling device for transporting tubular lengths between the at least one preparation opening, the at least one storage area, and the first hoist;

25 transporting a plurality of tubular bodies from outside the drill area to the at least one preparation opening in a substantially vertical position by means of the first pipehandling device;

 forming a tubular length by releasably interconnecting a plurality of tubular bodies with the torquing tool, while one of the tubular bodies extends through the
30 preparation opening and another is suspended by means of the first pipehandling device,

and withdrawing the prepared tubular length from the preparation opening by means of said first pipehandling device;

transporting the prepared tubular length to the at least one storage area in a substantially vertical position by means of said second pipehandling device;

5 transporting tubular lengths from the storage area to the drilling opening in a substantially vertical position by means of said second pipehandling device, and

releasably connecting said tubular lengths to the upper end of a drill stem suspended within the drilling opening with the torquing tool to form a completed drill stand, and successively lowering the drill stand through the drilling opening by means of
10 said first hoist.

15 15. The method according to claim 14, wherein said tubular length includes three tubular bodies, said tubular length being formed by arranging a first tubular body in the preparation opening with the first pipehandling device so that a substantial part thereof extends below the drill platform, and including the steps of:

holding a second tubular body above the upper end of the first body with the first pipehandling device and connecting the two tubular bodies with the torquing device; and

thereafter holding a third tubular body above the upper end of the interconnected first and second bodies with the first pipehandling device and connecting the third tubular
20 body to the interconnected first and second bodies with the torquing device.

25 16. The method to claim 15, including the step of lowering the interconnected first and second bodies so as to place the first body and a substantial part of the second body below the drill platform, whereafter the third body is connected to the upper end of the second body extending above said drill platform.

17. The method according to claim 14, wherein said tubular length includes three tubular bodies, said tubular length being formed by a method including the steps of:

30 arranging a first tubular body section in a first preparation opening with the first pipehandling device so that a substantial part thereof extends below the drill floor or platform,

arranging a second tubular body in a second preparation opening adjacent to the first preparation opening with the first pipehandling device so that a substantial part thereof extends below the drill platform,

holding a third tubular body above the upper end of the second body with the first
5 pipehandling device and connecting the two tubular bodies with the torquing device; and

thereafter holding the interconnected second and third bodies above the upper end of the first body with the first pipehandling device and connecting the interconnected second and third bodies to the first body with the torquing device.

10 18. The method according to claim 14, further including the steps of:

disconnecting tubular lengths from the upper end of the drill string at the drilling opening with the torquing tool, while successively withdrawing the drill string upwards through the drilling opening, and

transporting the disconnected tubular lengths from the drilling opening to the
15 storage area in a substantially vertical position by means of the second pipehandling device.

19. The method according to claim 14, further including the steps of:

transporting tubular lengths from the storage means to the first pipehandling
20 device in a substantially vertical position by means of said second pipehandling means,

lowering each tubular length through the at least one preparation opening by means of the first pipehandling means,

retaining the tubular length in the at least one preparation opening,

successively releasing the interconnection between adjacent tubular bodies above
25 the upper surface of the drill platform with the torquing tool, and

transporting the released tubular bodies from the preparation opening by means of the first pipehandling device.

20. The method according to claim 14, wherein the tubular body is a drill string.

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21. The method according to claim 14, wherein the tubular lengths comprise bottomhole assembly parts.

22. The method according to claim 14, wherein the tubular body is a well casing.

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23. The method according to claim 14, wherein the tubular body is a production tubing.

24. The method according to claim 14, wherein the axial dimension of each of
10 said tubular lengths corresponds substantially to the inner free height of the derrick.

25. The method according to claim 14, wherein the first pipehandling device comprises an axially rotatable vertical strut having at least one gripping device for gripping tubular bodies and tubular lengths attached thereto.

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26. The method according to claim 25, wherein the at least one gripping device is further designed to hoist tubular bodies and tubular lengths vertically.

27. The method according to claim 25, wherein the first pipehandling device
20 further comprises a hoist capable of lowering the gripping device outside the drill area to an outside tubular storage area.

28. The method according to claim 25, wherein said gripping device comprises at least two vertically aligned gripping devices arranged on the strut.

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29. The method according to claim 25, wherein said gripping device is extendable radially outward from the axial center of the first pipehandling device.

30. The method according to claim 14, wherein the second pipehandling device
30 comprises a gripping arm positioned adjacent to the at least one storage area, and wherein the gripping arm is rotatable about a vertical axis and laterally extendable.

31. The method according to claim 14, wherein the torquing tool is an iron roughneck.

5 32. The method according to claim 14, wherein the torquing tool is rotatable about a vertical axis and laterally extendable such that the torquing tool is capable of engaging tubular bodies or tubular lengths at both the at least one preparation opening and the drilling opening.

10 33. The method according to claim 14, wherein the at least one storage area is positioned between the drilling opening and the preparation opening.

 34. The method according to claim 14, comprising at least two separate storage areas wherein the second pipehandling device is positioned between the at least two
15 storage areas.

 35. The method according to claim 14, further comprising a third pipehandling device for transporting tubular bodies from a storage area outside the drill area to said first pipehandling device.
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 36. The method according to claim 14, further comprising a tubular ramp for transporting tubular bodies from a storage area outside the drill area to drill platform, wherein the first pipehandling device extends outward over the tubular ramp.

25 37. The method according to claim 14, wherein the derrick defines a first access opening through which the first pipehandling device may grip the tubular bodies from outside the drill area.